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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/660.903	09/11/2003	Martin Langhammer	ALTRP185/A849	6969

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BEYER WEAVER & THOMAS, LLP
ATTN: ALTERA
P.O. BOX 70250
OAKLAND, CA 94612-0250

EXAMINER

DO, CHAT C

ART UNIT PAPER NUMBER

2193

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/27/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/660,903

Applicant(s)

LANGHAMMER, MARTIN

Examiner

Chat C. Do

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 September 2003 and 24 December 2005 a.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) 5 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09/11/2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

1. This communication is responsive to Election/Restriction filed 12/20/2006.
2. Claims 1-5 are pending in this application. Claims 1 and 5 are independent claims. In Response to Election/Restriction, group I claims 1-4 are elected without traverse and claim 5 is withdrawn from consideration. This Office Action is made non-final.

Drawings

3. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the programmable logic device in claim 1 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an

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application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

4. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

5. The abstract of the disclosure is objected to because the abstract is written more than 150 words in length. Correction is required. See MPEP § 608.01(b).

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1-4 are rejected under 35 U.S.C. 102(b) as being anticipated by Pedersen (U.S. 6,066,960).

Re claim 1, Pedersen discloses in Figures 1 a programmable logic device (PLD) including a plurality of logic array blocks (LAB's) connected by a PLD routing architecture (e.g. general concept is seen in Figure 1 and col. 1 lines 14-27), wherein at least one LAB is configured to determine a compression of a plurality of N-bit numbers (e.g. Figure 1D as a LAB to compress 3-2 by individual LE), the one LAB comprising: a plurality of look-up table (LUT) logic cells (e.g. LE1-LE_{n+1} in Figure 1D), each look-up table (LUT) logic cell (e.g. Lex, particularly LUTs) configured to input three signals at three respective inputs of that look-up table (LUT) logic cell and to output two signals at two respective outputs of that look-up table logic cell (LUT) that are a sum and carry signal resulting from adding the three input signals (e.g. sx as the sum output of the LE and output of carry chain is the second carry output as seen in Figure 1D); input lines configured to receive input signals from the PLD routing architecture that represent the plurality of N-bit numbers and output lines configured to provide output signals to the PLD routing architecture that represent the compression of the plurality of N-bit numbers (e.g. Figure 1 and col. 1 lines 28-58); and LAB internal routing logic (e.g. 16 as LAB in Figure 1A), not part of the routing architecture of the PLD (e.g. excluded from the external routing architecture of PLD as seen in Figure 1A), connecting the LUT logic cells such that the LUT logic cells collectively process the input signals (e.g. Figure 1D as cascaded manner), received at the input lines (e.g. as operands A and B wherein each of operand is included a n-bits), that represent the N-bit numbers to generate the output signals, provided at the output lines, that represent the sum of the N-bit numbers (e.g. Sx as the sum bits for the LAB as seen in Figure 1D).

Re claim 2, Pedersen further discloses in Figures 1 the LUT logic cells are organized into slices, each slice performing processing relating to a separate one of the bits of the N-bit numbers (e.g. Figure 1D).

Re claim 3, Pedersen further discloses in Figures 1 each of the input lines is configured to receive one bit of one of the N-bit numbers (e.g. Figure 1D wherein there is only one bit of each operand is input into the LE).

Re claim 4, Pedersen further discloses in Figures 1 at least some of the input lines are configured to receive more than one bit of the plurality of N-bit numbers (e.g. Figure 1C wherein there are four input bits into the LE).

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- a. U.S. Patent No. 6,066,960 to Pedersen discloses a programmable logic device having combinational logic at inputs to logic elements within logic array blocks.
- b. U.S. Patent No. 6,317,71 to Langhammer discloses a method and apparatus for performing digital division.
- c. U.S. Patent No. 5,815,003 to Pedersen discloses a programmable logic integrated circuits with portioned logic leemtn using shared lab-wide signals.
- d. U.S. Patent No. 6,369,610 to Cheung et al. disclose a reconfigurable multiplier array.

- e. U.S. Patent No. 6,897,679 to Cliff et al. disclose a programmable logic array integrated circuits.
- f. U.S. Patent No. 5,491,653 to Taborn et al. disclose a differential carry-save adder and multiplier.
- g. U.S. Patent No. 6,584,485 to Aoki et al. disclose a 4 to 2 adder.
- h. U.S. Patent No. 5,499,203 to Grundland discloses a logic elements for interlaced carry/borrow systems having a uniform layout.
- i. U.S. Patent No. 5,761,099 to Pedersen discloses a programmable logic array integrated circuits with enhanced carry routing.
- j. U.S. Patent No. 5,898,602 to Rothman et al. disclose a carry chain circuit with flexible carry function for implementing arithmetic logical functions.
- k. U.S. Patent No. 6,943,580 to Lewis et al. disclose a fracturable lookup table and logic element.
- l. U.S. Publication No. 2003/0163504 to Knowles discloses an addition circuit for accumulating redundant binary numbers.
- m. U.S. Patent No. 4,228,520 to Letteney et al. disclose a high speed multiplier using carry-save/propagate pipeline with sparse carries.
- n. U.S. Patent No. 6,407,576 to Ngai et al. disclose an interconnection and input/output resources for programmable logic integrated circuit devices.
- o. U.S. Publication No. 2002/0129077 to Rhee discloses a high speed low power 4-2 compressor.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chat C. Do whose telephone number is (571) 272-3721. The examiner can normally be reached on M => F from 7:00 AM to 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng-Ai An can be reached on (571) 272-3756. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Chat C. Do
Examiner
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February 15, 2007

